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# **Development of Stock Markets, Societal Norms and Legal Institutions**

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# **Development of Stock Markets, Societal Norms and Legal Institutions**

## **Abstract**

We explain the development of stock markets by both legal and societal determinants and analyze the relevance of both determinants in the Levine-Zervos (1998) cross-sectional growth regressions. We argue that the legal indicators as developed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) are not covering all the aspects of alternatives to financial contracting as suggested by Levine (2000). The basic argument is that the legal classification of countries does not completely cover the cross-country variation in the societal desire to use contracting in financial transactions. After establishing the determinants of stock market development we analyze the impact of stock market development on economic growth. We use a 2SLS approach to correct for the endogeneity of stock market development. We contradict the positive view of Levine-Zervos on the impact of liquidity of stock markets on economic growth. Our conclusions are in line with Levine (2000) who argues that it is not financial structure but the development of the deep structural legal and societal characteristics that is instrumental to economic growth.

# 1 Introduction

There is a large literature on the relationship between economic growth and financial intermediation. There are early advocates of either a positive influence of financial intermediation or a negative impact. Hamilton (1781) argued that banks were crucial for economic growth. Bagehot (1873) emphasizes also the critical importance of the banking system. The most famous proponent is Schumpeter (1934) who suggests a positive impact of the development of the financial sector on both the level and the growth rate of per capita income (see also Goldsmith, 1969, who presents empirical support for the positive relationship with data for 35 countries). These early studies argue that a more developed financial system leads to a better allocation of resources, better monitoring and less information asymmetries. There are also economists who believe that financial development is just a side product of real development (Robinson, 1952, and Lucas, 1988). It might even be so that better resource allocation leads to lower savings, which will slow down economic growth (see Bencivenga and Smith, 1991, King and Levine, 1993b). So there is a theoretical debate which asks for empirical research.

The debate is hard to solve and causality is hard to pin down empirically. In the last decade the availability of more appropriate data increased the number of empirical papers in this field. There is recent evidence on the relation given by King and Levine (1993a, 1993b), who initiated the modern incarnation of this literature, Atje and Jovanovic (1993), Demirgüç-Kunt and Maksimovich (1998), Levine and Zervos (1998), Rajan and Zingales (1998), Neusser and Kugler (1998), Rousseau and Wachtel (1998), Carlin and Mayer (1999) and Beck, Levine and Loayza (2000). All these studies point at a positive impact of (the exogenous component of) financial intermediation on per capita growth. The effects found are rather even large. Levine and Zervos (1998, p. 547) argue that a one-standard deviation increase in initial stock market liquidity leads after 18 years to an increase of real per capita GDP by 15 percent. Harris (1997) is one of the rare studies that contradicts these positive findings in replicating the Atje-Jovanovic results.

A lot of the attention in the literature is given to the bank-based versus the market-based views. According to this literature it is important to discuss the precise channel of transmission. Basically one might have the idea that banks are important and central in the economic growth process. An

alternative might be the development of markets, especially stock markets. Many papers therefore address the separate impact of the banking sector and the stock market development on economic growth (the financial structure hypothesis). For instance Demirgüç-Kunt and Levine (1999) analyze financial structure in a cross-section of 150 countries and conclude that: (1) financial systems are more developed in richer countries, (2) in higher income countries stock markets become more active and efficient relative to banks, (3) Common Law countries (see hereafter for a more extensive discussion of legal indicators) tend to be more market-based, and (4) French Civil Law countries have underdeveloped financial systems. Levine (2000) argues that it is not the issue whether banks or markets do the job, financial services provided by banks and markets are important (the financial services hypothesis). The legal-based view of financial structure, as proposed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV hereafter, 1997, 1998, 1999, 2000) extends this financial services view stressing the legal protection of investors. This literature shows that it is important to analyze the development of the financial sector itself. LLSV show that countries that protect shareholders have more valuable stock markets, larger number of listed securities per capita, and a higher rate of IPO (Initial Public Offering) activity than do the unprotective countries. Levine (2000) gives empirical support for the financial services view. He shows that it is not financial structure that helps in explaining cross-country differences in long-run economic performance. Distinguishing countries by their overall level of development does explain these differences.

It is important to include measures of the deep structural determinants of the development of the financial system in analyzing the impact of financial development on economic growth.

Beck, Levine and Loayza (2000) and Levine, Loayza and Beck (2000) show that the influence of banking sector development continues to hold when an exogenous component of this development, obtained using legal origin and enforcement as instruments, is taken as a predictor. Levine (2000) uses legal instruments in analyzing the impact of aggregate financial development on economic growth and confirms the importance of the legal protection of investors. There is no separate analysis of the impact of legal determinants on stock market development though. For instance Levine and Zervos (1998) analyze the impact of stock market development on economic growth without using instruments for the endogeneity of stock market development. As Harris (1997)

shows, the choice of instruments in explaining per capita GDP growth by stock market capitalization is important and can lower the alleged effects substantially.

The first goal of this paper is to fill the gap in the literature by analyzing the impact of legal indicators on the development of the stock market itself and relate this work with the determinants of economic growth. The second line of the paper is to extend the class of deep-structural characteristics of the economy by the inclusion of societal norms. Societal norms are really at the core of economic behavior and might explain differences in legal systems and economic development. Societal norms are measures of differences in culture. We have various clues to be interested in these variables. A first argument to study other than legal indicators comes from the interest of other studies in this field. Berglof and Von Thadden (1999) argue that countries can develop other institutions for stopping expropriation, such as moral sanctions or worker participation in management. Rajan and Zingales (1999) stress the role of the political structure rather than specific legal rules in explaining difference in investor protection. These arguments might question whether there are deep-lying cultural differences between countries that explain the use of either legal or other institutional devices to solve contracting problems. As with legal institutions it is common to argue that societal norms change gradually. So we are only able to correlate and not analyze causality. Secondly, there might be thoughts of misclassification of certain countries if one really follows roughly the legal origin classification as LLSV suggest. The Netherlands for instance is classified in the French legal origin group and show indeed weak investor protection. On the other hand The Netherlands has a fully-fledged financial system and a lively economic growth performance. As LLSV (1997, 1149-1150) suggest it might be so that trust substitutes for legal institutions. Usually it is argued that societies with a higher trust demonstrate a greater cooperation between agents that meet infrequently. One can use the example of a shareowner and management of the firm here (or the bank client and the bank manager). Fukuyama (1995) stresses for instance the need of cooperation between strangers (outside shareowners) for the success of large firms. Putnam (1993) argues that trust is founded in horizontal networking and hindered by vertical hierarchic relationships. Inglehart, Basanez and Moreno (1998) give data on trust based on the World Value Survey, which supports the view that in The Netherlands, with a percentage of high trust in people of 56%, as compared to the French legal origin countries with an average of 24.0%, has a high score (see Table 1 for an overview of the trust data in the last column).

The Netherlands is actually ranked among the Scandinavian legal origin countries. So we endogenize stock market development with the legal institutions, as put forward by others, and with the societal norms, and analyze the effects of financial services on economic growth. In final regressions we include both banking indicators and stock market indicators and do not try to answer the financial structure issue explicitly.

This paper is organized as follows. In the next section we shortly review the theoretical literature on the relationship between economic growth and stock market development. After that we discuss the legal data in short (as they are by now well-known in the literature) and the societal data in more detail. In section 4 we present the major estimation results for both the models that explain stock market development and the growth regressions using stock market development and instrumenting for the endogeneity of the stock market indicators. Our findings mainly contradict the results found by others. We do find a significant impact of the bank-based view, but have less convincing evidence for stock market indicators. We conclude in section 5.

## **2 Theory of development of stock markets**

The theory of financial development concentrates mostly on financial intermediation. What is the role of financial intermediaries in mobilizing savings and increasing the productivity of capital? Besides financial intermediation the development of financial markets itself is important. The development and regulation of stock markets play a key role in the financial system architecture. Stock market development and other aspects of financial market development take place simultaneously and complement each other (Demirgüç-Kunt and Levine, 1996). A crucial question is, however, to what extent and under what kind of conditions, stock market development contributes to a process of long-term economic growth.

According to authors who emphasize the importance of stock market development, liquid stock markets are crucial in stimulating industrialization.<sup>1</sup> In addition to bank-finance, share issues provide possibilities for raising external funds. More importantly, stock markets may have an important role in improving economic growth by allocating resources to investment projects that

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<sup>1</sup> See the May 1996 issue of the World Bank Economic Review for an extensive discussion.

provide the highest returns. In the absence of well-functioning financial markets, agents may have difficulties in protecting themselves from (uncertain) liquidity shocks, which forces them to invest in liquid assets that can be converted very easily in a medium of exchange. Stock markets provide liquidity insurance since shareholders in need of liquidity can sell their shares -which are claims on profits of an illiquid production technology- while firms can permanently use the funds invested by the initial shareholders. Hence, stock markets are able to facilitate more productive long-duration investments (*e.g.* Levine, 1991; Bencivenga, Smith and Starr, 1995). Commercial banks may also provide liquidity insurance. However, since commercial banks are subject to bank runs, which enforce banks to liquidate long-term projects, stock markets probably have a much more important role in stimulating productive investment. Stock markets may also help to overcome problems of asymmetric information when countries start to liberalize their financial sector without having a well functioning equity market (Cho, 1986). The reason is that equity markets, in contrast to banks, do not suffer from moral hazard and adverse selection. A final theoretical issue we want to mention here is that stock markets may reduce agency problems between the owners and the managers of the firm if the compensation of managers is tied to stock. This may also improve a firm's productivity.

Yet, the role stock markets play in stimulating economic growth is not undisputed. Stein (1989), for instance, argues that stock markets stimulate investments in short-term projects since stock markets continuously evaluate the managers. It may also be the case that more liquid stock markets, with a substantial amount of small shareholders and hence diffuse ownership, decrease incentives to monitor the investors carefully (Levine, 1997). Moreover, liquid equity markets may facilitate hostile takeovers, which decrease the efficiency of resource allocation. There are also authors who argue that stock markets do not have an important role since only a small part of corporate investments is financed by means of equity. Stock markets may even have a negative effect since they are merely "casinos." Singh (1997) is a well-known opponent of the view that stock markets are crucial for a process of long-run economic growth. Singh argues that stock markets, even in developed economies, do not perform the monitoring, screening and disciplinary role very well (Singh, 1997, p. 774). In emerging markets, including the transition economies, it is even worse since the regulatory infrastructure is badly developed (Singh, 1997, p. 775). Moreover, in most transition economies the stock markets are very thin. This may lead to excessively volatile share prices. According to Singh (1997), stock price volatility may seriously hamper economic development. Recent developments in the Asian financial markets seem to confirm this. He also



points out, in contrast to the analysis of Cho (1986), that stock markets have much more problems with asymmetric information than banks.<sup>2</sup> The reason is that stock markets very often provide investors with short-term finance, whereas banks, especially group-banks, have long-run relationships with firms. In other words, stock markets may suffer from short-term myopia. Finally, long-term growth may be hampered in the case of negative economic shocks due to close connections between the stock and currency markets (Singh, 1997, p. 780).

### 3 Data

We use the data set provided by Levine and Zervos (1998) concerning the stock market variables. It is necessary to measure various characteristics of stock market development, like size, liquidity and volatility (Levine and Zervos also discuss integration with world markets, but we will refrain from the latter, since it reduces the number of countries too much). Single indicators are likely to reveal partial effects. We use the following indicators as dependent variables (from Levine and Zervos, 1998):

- *MCAP*: Capitalization. It measures the **size** of the stock market and equals the value of listed domestic shares on domestic exchanges divided by GDP.
- *TOR*: Turnover. It is a **liquidity** indicator and measures the value of the trades of domestic shares on domestic exchanges divided by the value of listed domestic shares.
- *TVT*: Value traded. It is a **liquidity** indicator and measures the value of the trades of domestic shares on domestic exchanges divided by GDP.
- *VOL*: **Volatility**. A 12-month rolling standard deviation on market returns.

The data refer to the period 1976-1993: initial figures are for 1976. Furthermore we use the same set of conditioning variables as Levine and Zervos<sup>3</sup> in order to be able to compare our results with theirs. This set includes initial output, enrollment (secondary school enrollment in 1976), revolutions and coups, government consumption share of GDP, inflation, the black market exchange rate premium and the stock of credit by commercial and deposit-taking banks to the private sector divided by GDP.

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<sup>2</sup> For a critique on Cho, see also Kumar (1994).

For the legal data we use LLSV (1998). Table 2 reviews the data for each country. We take three categories into consideration: legal indicators that relate to the equity markets:

- **ONE: One share-one vote:** equals 1 if it is not allowed to separate voting rights from dividend rights.
- **PROXY: Proxy voting by mail** allowed: is 1 if so.
- **BLOCK: Shares blocked before the shareholder meeting:** is 1 if law does not require depositing shares several days prior to the meeting to avoid trade.
- **VOTE: Cumulative voting for directors:** some countries allow cumulative voting for directors, which gives more power to minority shareholders.
- **OPP: Oppressed minority:** give minority shareholders legal mechanisms to be used against perceived oppression.
- **PRE: Preemptive rights to new issues:** is 1 if so;
- **PERC: Percentage of capital needed** to call an extraordinary shareholder. The higher this percentage the lower the legal protection. We use a dummy variable: if PERC is less or equal than 10%, the dummy variable equals 1.
- **ANTI: Anti-director rights:** summation of *ONE*, *BLOCK*, *VOTE*, *OPP*, *PRE* and *PERC*.
- **MAND: Mandatory dividend:** some law code requires distribution of a minimum dividend percentage.

For the creditor rights we use (see LLSV, 1998, and Table 3):

- **AUTO: No automatic stay** on assets of the firm in case of a reorganization petition. This relates to bankers from gaining possession of collateral.
- **SEC: Secured creditors** are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm.
- **RES: Restrictions for going into reorganization.**
- **MAN: Management of the firm does not stay** pending a reorganization.
- **CRED: Creditor rights:** sum of the dummy-values on *AUTO*, *SEC*, *RES* and *MAN*.
- **LEG: Legal reserve required as a percentage of capital.**

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<sup>3</sup> The Levine-Zervos database is available on the Web-page of the Woldbank on the economic growth research project pages.

For the enforcement data we have (see LLSV, 1998, and Table 4):

- **EFF: Efficiency of the judicial system:** ranges from 1 (bad) to 10 (good).
- **RULE: Rule of law:** ranges from 1 (bad) to 10 (good).
- **COR: Corruption:** ranges from 1 (bad) to 10 (good).
- **EXP: Risk of expropriation:** ranges from 1 (bad) to 10 (good).
- **REP: Risk of contract repudiation:** ranges from 1 (bad) to 10 (good).
- **ACC: Accounting standards:** index on the degree of detail in annual reports (see Levine (1998). Varies between 0 (bad) to 90 (good).

Next we come to the societal data, which we describe in more detail. The societal data we use are societal norms developed to measure international differences in culture. Culture is defined to be the collective programming of the mind, which distinguishes the members of one group or category of people from another. Culture is learned, not inherited. Cultural differences manifest themselves in various ways. The deepest manifestation of culture is the set of values. Values are broad tendencies to prefer certain states of affairs over others. Norms are the standards for values that exist within a group or category of people. More superficial differences in culture can be found in symbols, heroes and rituals.

It is natural to analyze national cultural differences. The problem with this analysis is to define the dimensions of analysis. Inkeles and Levinson (1969) identify what problems can be qualified as common basic problems worldwide to all societies:

1. Relation to authority;
2. Conception of self, in particular: (a). the relationship between individual and society, and (b). the individual concept of masculinity and femininity;
3. Ways of dealing with conflicts, including the control of aggression and the expression of feelings.

Hofstede (1980) uses an ideal matched sample to measure these concepts. He analyzed survey data about the values of people working in local subsidiaries of IBM in more than 50 countries. He defined four problems common in all answers:

1. Social inequality, including the relationship with authority;

2. The relationship between the individual and the group;
3. Concepts of masculinity and femininity;
4. Ways of dealing with uncertainty (again including aggression and emotion).

Hofstede defined the following indicators related to these concepts:

1. **PDI: Power distance** is defined as the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. Power distance is thus explained from the value systems of the less powerful members of a society. It measures to a certain extent societal inequality.
2. **IDV: Individualism** pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself. Collectivism pertains to societies in which people from birth onwards are integrated into strong, cohesive in groups, which throughout their lives continue to protect them in exchange for unquestioning loyalty.
3. **MAS: Masculinity**: this property shows the desirability for assertive behavior against the desirability of modest behavior. It appears that in some societies there are strong differences in answers given by men or women. In the modest countries the differences in gender are weak, but in assertive countries differences are strong.
4. **UAI: Uncertainty avoidance** is defined as the extent to which the members of a culture feel threatened by uncertain or unknown situations. It is not risk avoidance: the latter is defined with respect to a certain object. Uncertainty avoidance is more general.

Hofstede gives indices for 53 countries and/or regions for these indicators. For our set of 47 countries in the Levine-Zervos set we are able to cover 43 countries (we lack data for Bangladesh, Cote d'Ivoire, Luxembourg and Zimbabwe). Before we turn to use the indicators in our analysis of stock markets it is good to give some descriptive statistics of the four dimensions. Since we will compare our societal data with the legal origin data, we cross-analyze the two sets. So we first discuss the societal data in a legal origin classification. LLSV present this classification. After that we give the reverse, we discuss the legal indicators in a societal classification in Tables 2 to 4. Doing so we are able to show whether there are societal differences between and within legal origin groups. If so this justifies moreover using both legal origin and societal data in explaining financial development.

Table 1 gives the raw data on the societal variables for 43 countries in our sample. On the Power Distance indicator Malaysia is the top scorer. Here subordinates accept inequality the most. Austria, Israel and the Scandinavian countries are at the other end of the spectrum. Table 1 shows that if one uses the legal origin definition by LLSV, countries in the Scandinavian class score below average on *PDI*, while the French origin countries tend to have a high *PDI*. The lower panel of Table 1 gives P-values of a t-test on equality of means of sub-samples. A low value indicates a low acceptance of equal means. In the first line the English Common Law countries are compared with the other Civil Law countries. Table 1 shows that the Scandinavian scores on *PDI* are rather different. On the *IDV* indicator the top-scorers are the USA, Australia, Great Britain and Canada. But as a whole the Common Law countries are not so different. As Hofstede shows individualism tends to be correlated with GDP per capita. In our sample *IDV* has a clear negative correlation with the Power Distance (-0.65). If we correlate the *IDV* with legal origin one can observe that Common Law and Scandinavian legal origin countries tend to show a higher *IDV*-score. The lower part of the Table again gives an indication of equality of means of the various classifications. Although English and Scandinavian countries have high scores they are different in mean. On the masculinity it appears that Japan is by far the top-rated country, followed by some continental European countries. More modest countries are again the Scandinavian countries. So one can observe that the Scandinavian origin countries have a relatively low score, while the German origin countries obtain higher scores on average. On the uncertainty avoidance Greece is on the top of the list, followed by Portugal and Belgium. Low scores are for Singapore and Jamaica. German and French legal origin countries seem to have higher uncertainty avoidance, while Common law countries are typically lower rated. The English and Scandinavian countries are harder to distinguish on this norm. The final column gives fragmented data on trust. This column indicates that the different groups differ in trust. Scandinavian countries have a high trust on average, Common Law countries a lower average, while the French origin countries show a low average trust.

The legal origin clustering of countries might be sometimes too rough from a societal perspective. It seems that the societal norms bring in another dimension. With the legal norms it is easy to give a unique classification of the countries. For the societal data this is less clear. It is nice though to compare the correlations between the use of the various investor protection measures and the societal data from a country classification. So we cluster the countries here according to their

societal norms. As Hofstede (1991) suggests the Power Distance Indicator (*PDI*) and the Individualism (*IDV*) are negatively correlated. In order to analyze the data further we performed a factor analysis on *PDI*, *IDV*, *MAS* and *UAI*. The analysis supports the idea that there is one common factor. Its eigenvalue is 1.189 as 0.115 for the next. Also a Principal Component analysis supports the idea of one dominant factor (having the first eigenvalue explaining 45% of the total variance). So we use the factor loading to construct our country classification. We use 0.48 as a weight for *PDI*, -0.48 for *IDV*, 0.20 for *MAS* and 0.24 for *UAI*. From these weights the clear negative correlation between *PDI* and *IDV* can be seen. We use the weighted score to classify the countries into 5 subgroups. Between parentheses are the scores on the weighted ranking.

1. The Nordic countries: Denmark (1), Sweden (2), Netherlands (3), Norway (4) and Finland (10).
2. The Anglo-Saxon countries: Great Britain (5), New Zealand (6), Australia (7), USA (8) and Canada (9).
3. Continental countries: Austria (12), Belgium (17), Germany (13), Italy (14), France (15), Spain (17) as well as the large Latin-American countries Argentina (19) and Brazil (23), as well as Israel (11) and Jamaica (15).
4. Asian culture: India (20), Singapore (21), Hong Kong (22), Turkey (24), Thailand (25), Japan (26), Taiwan (27) and Pakistan (29)
5. The other countries typically show less communality.

We included Finland in the Nordic group, since its scoring pattern resembles the other Scandinavian countries. Jamaica and Israel show scores very similar to the continental group. At first sight one would not expect these two countries to be in the continental group. Our classification has a clear disadvantage in having a relatively large group of countries that cannot be classified, except from scoring rather extremely on all the societal norms. We do not want to trouble the homogeneity of the other groups though too much.

It is interesting to compare our classification with the one presented by Inglehart et al. (1998, p. 150). Based on the World Value Survey they classify 43 societies/countries along two key values. The two dimensions are:

1. Traditional authority versus secular-rational authority. Is there obedience to a traditional authority, or is authority legitimated by rational-legal norms?
2. Survival values versus well-being values. Is there a shift from scarcity norms, emphasizing hard work and self-denial, to quality of life?

These two dimensions clearly give a clustered group of Scandinavian countries plus the Netherlands, Anglo-Saxon countries, Catholic Europe and Latin American countries and Asian countries (as well as Eastern European countries, but these are not included in our sample). This finding correlates with the classification given above.

So next we are able to classify the legal indicators along societal classes. Tables 2 to 4 we cross list the LLSV investor rights with our five cultural groups. We give the full data set, as LLSV (1998), but now reorganized along our societal classification. In the lower parts of the tables we give P-values of the t-test on equality of the means of the various subgroups. Table 2 gives the shareholder rights indicators. Our classification gives at least the same percentage of differences between subgroups as the LLSV legal classification does. LLSV find on the 10 percent significance level 31 of the 63 comparisons a significant difference in mean. We compare 90 means and find 38 significant differences at the 90 percent confidence level. The distribution over the indicators is about the same as for the legal classification. We do not find significant differences in the “Preemptive Right to New Issues”. The most pronounced differences are found in “Proxy by Mail” and “Shares not Blocked Before Meeting”. The Anglo-Saxon group is more homogeneous than the Common Law countries; the same holds for the Nordic group as opposed to the Scandinavian group, but to a lesser extent. The distinction between the Anglo-Saxon and the Common Law group becomes stronger as it concerns the anti-director rights. To conclude the societal classification leads to heterogeneity between subgroups with respect to shareholder rights that is comparable to the legal origin classification.

Table 3 gives the same analysis for the creditor rights. Here we note that the differences in the societal classification are a bit less pronounced than for the legal classification. LLSV find 23 of the 42 differences in mean at the 90 percent confidence level. We only find 13 out of the 54. With respect to the “No automatic stay on assets” and Secured Creditors First Paid” we almost find no differences in our classification. With respect to the Creditor Rights we find that Anglo-Saxon

countries are different. Apparently the Asian Common Law countries are responsible for stronger creditor rights in the LLSV common law origin group. So for the creditor rights our societal classification gives less pronounced differences. Table 4 gives the enforcement data. LLSV find 29 of the 42 mean comparisons to yield significant differences in means. We find 46 of the 60 and most of them highly significant. Especially with respect to “Efficiency of the Judicial System”, “Rule of Law” and “Corruption” we find pronounced differences. In enforcement the differences between the societal subgroups are bigger than between the legal origin countries. Table 5 finally cross-tabulates the societal and legal classifications. From this Table it can be seen that the two classifications are rather different, except for the Scandinavian-Nordic matching.

Although the differences in investor protection might depend to a large extent on legal origin, our calculations show that societal origin might as well explain part of the differences. If societal differences are able to explain differences in legal instruments they probably also indicate other differences in attitudes that can be relevant to financial behavior. It can be the case that a high trust country does not strive for sharp legal institutions to cover the weak spots of financial contracting. Sometimes this leads to differences in insights. The Netherlands, officially belonging to the French legal origin class, truly behaves like a Nordic country. The Asian Common Law countries show different legal institutions than the Big-5 Common Law countries. Although they adopted the British legal system, other societal norms typically make them different. These findings support the idea that it is worthwhile to analyze the role of societal norms in explaining financial development.

## **4 Estimation results**

In this section we present two sets of results. First we present the estimation of the models that explain stock market development itself. Second, we give estimates for indicators of economic growth depending on financial indicators, while we instrument for the endogeneity of stock market development. Levine and Zervos (1998) use four indicators of economic growth: output growth, capital stock growth, productivity growth and private savings. It is good to repeat the main findings of Levine and Zervos (1998) here, before we give our own estimates:

- Stock market liquidity, measured by either the value of stock trading relative to the size of the market (*TOR*) or by the value of trading relative to the size of the economy (*TVT*), is positively



and significantly correlated with current and future rates of economic growth, capital accumulation, and productivity growth.

- The other stock market indicators, market capitalization (*MCAP*) and volatility (*VOL*) do not have a robust link with long run growth.
- International integration is not robustly linked with economic growth either.
- None of the financial indicators is linked with private savings.

We refrain from the analysis of integration and the private savings channel, since previous results are not promising and it restricts the sample quite a bit. It should be noted here that Levine (2000) does find a significant impact of financial services indicators on private savings.

First, we concentrate on the impact of both legal variables and societal norms on stock market development. We include 4 characterizations of stock market development: market capitalization (*MCAP*), turnover rate (*TOR*), total value traded (*TVT*) and volatility of equity prices (*VOL*). In the base model we control for initial output per head, output growth and an enforcement variable. We follow LLSV (1998) in this respect. Since all enforcement variables are correlated we use *EFF*: efficiency of the legal system as a proxy. For each indicator we estimate 6 models. In Tables 6 to 9 the six models can be found in the various columns. The six models do not cover all the possible combinations between all the variables, but give a highlight of the most important contributions. In the first column we include Antidirector Rights (*ADR*) only. According to LLSV (1998) *ADR* should have a clear positive effect on stock market development. Since *ADR* and the legal origin dummies are correlated we substitute the legal origin dummy variables for *ADR* in the next column (2). After that we include *ADR* and the societal norm indicators Power Distance (*PDI*), Individualism (*IDV*), Masculinity (*MAS*), and Uncertainty Avoidance (*UAI*) in column (3). In the fourth regression (column (4)) we again substitute the legal origin variables for the Antidirector Rights. In the fifth regression we combine *ADR* with the Nordic, Anglo-Saxon, Continental and Asian origin variables. Here we could next include the societal origin dummies in combination with the legal origin dummies, but these are for some categories correlated and lead to less interesting results. In the last regression we use the scores on the factor analysis of the country classification (see column (6)). Again here we also could have included the legal origin dummies with the factor, but again these results do not outperform the previous ones. Tables 6 to 9 have an identical structure

and give the results for the four stock market indicators. Note that we estimated the model using the White correction for the correction of heteroscedasticity.

Before we discuss the results it is good to have an insight into the expected signs of the parameters. We expect from previous results that legal protection of investors and enforcement will increase stock market development. So the effect of antidirector rights (*ADR*), efficiency of the judicial system (*EFF*) and the legal origin dummies that correspond with legal protection of investors (like the Common Law origin) should have positive signs. Countries with a low Power Distance Indicator (*PDI*) apparently will show a larger trust, since there is more value in horizontal relationships. A higher trust makes the development of a stock market less necessary, so a higher *PDI* will probably correlate with a more pronounced stock market development. A higher individualism (*IDV*) should have a positive impact (*ceteris paribus*) on stock market development. Individualism points at the efficiency of a market as a coordinating device. The sign of *MAS* is less clear. Countries which like autonomy (a high score on *MAS*) will favor stock market development on the one hand, since masculine cultures will be focused more on performance. Finally Uncertainty Avoidance (*UAI*) might hint at the existence of insurance companies instead of stock markets. One could argue that stock markets provide both insurance and risk-seeking opportunities. The sign of *UAI* is less clear therefore. In any case we need to be careful in directly interpreting the parameters, since a factorization of the 4 societal norms into one variable makes sense, and at least two of the indicators, *PDI* and *IDV*, are correlated. We include all four variables simultaneously in the model and analyze the joint contribution of all.

Table 6 contains the estimation results for the model with the indicator of size: Market Capitalization (*MCAP*). In the first column we estimate the impact of the antidirector rights variable (if we estimate without the *ADR* we get an adjusted  $R^2$  of 0.48). The *ADR* variable has a clear positive impact on market capitalization. If we substitute for the legal origin dummy variables it is clear that the Common Law countries have a larger market capitalization. Next we include the societal variables. We find for market capitalization a significant contribution of the societal variables (compare with the fit of column (1)). Next we reshuffle *ADR* with the legal origin dummy variables and again find a robust impact of societal norms. Finally we include the societal origin dummy variables and find a significant contribution of the Nordic dummy variable. The

contribution of the societal country dummy variables is less convincing than the attribution of the raw societal norms. While we found no impact of the Scandinavian origin, the inclusion of the Netherlands in this group needs to a significant negative impact on market capitalization. Also the continental countries seem to have a little lower market capitalization. Finally we estimate the model with the factorization instead of the country dummies. This gives the conclusion again that societal variables are important in explaining market capitalization.

Next we turn to the first indicator of the liquidity of the stock market: the Turnover Rate (*TOR*) in Table 7. Here we do not find direct effects of investor protection or enforcement. Real growth matters for the liquidity. The inclusion of the legal origin dummy variables in the equations does matter as well. We find lower turnover rates for the Scandinavian and French legal origin countries. The societal variables do not have a serious impact on the turnover rate. In Table 8 we present the results for the second indicator of liquidity: Total Value Traded (*TVT*). Antidirector rights seem now to matter again. Enforcement has no significant impact. The legal origin is now not important, while the societal norms add some information (*MAS*). The Nordic classification seems to lower *TVT*. It seems appropriate therefore to instrument for investor rights and societal variables in economic growth-*TVT* regressions. Finally in Table 9 we analyze volatility. Here we basically find only one result: enforcement matters: it brings volatility down. From the regressions shown above it seems appropriate to instrument economic growth regressions using indicators of equity market development with both legal and societal variables. As Beck, Levine and Loayza (2000) a similar argument can be put forward for creditor rights. Therefore we will use all of them in the following growth regressions and test for the value added of societal norms.

Next we turn to the analysis of economic growth conditional on the various indicators of financial development. The major conclusion in the literature up to now is that legal institutions matter to financial development as a whole (Levine, 2000). Moreover it has been illustrated that creditor rights and legal origin are important instruments in the relation between economic growth and the development of financial intermediation. Here we test for the importance of legal and societal variables in the relation between economic growth and stock market development. In estimating the relationship between economic growth and financial development using instruments the selection of the instruments is quit crucial. Levine (2000) uses an indicator of equity investor rights, creditor

rights and enforcement. Based on our previous results it is natural to use as the set of instruments for financial indicators:

- An indicator of equity investor rights. We use both the Antidirector Rights (*ADR*) and the legal origin dummy variables. Both are correlated but have a separate contribution.
- An indicator of creditor rights: *CR*.
- An indicator of law enforcement: we use the efficiency of the judicial system (*EFF*).
- Indicators of societal norms: Power Distance Indicator (*PDI*), Individualism (*IDV*), Masculinity (*MAS*) and Uncertainty Avoidance Indicator (*UAI*). We use the raw data here in the instruments and not the factorization, just to make sure that we are able to account for all the variation.

We extend the findings of Levine and Zervos in a number of respects. Tables 10 to 14 give the extended versions of the Tables 3-7 of the Levine-Zervos paper. Each table contains:

- In the top panel the original results of Levine and Zervos. Here we note that in these results the initial values of the determinants listed in the tables are taken. Moreover Levine and Zervos present the unadjusted  $R^2$ . Since we use instruments in our regressions we use the average instead of the initial values of the variables denoted in the tables. We also use adjusted  $R^2$ , because we add a lot of additional information.
- In the second panel the results of a 2SLS estimation using the Efficiency of the Judicial System (*EFF*), the Creditor Rights (*CR*), the Antidirector Rights (*ADR*), and the legal origin dummy variables as instruments. In general we get a bad fit if we omit the legal origin dummies. So although the legal indicators are correlated we prefer to include them all.
- In the third panel the set of instruments extended with the societal norm indicators Power Distance (*PDI*), Individualism (*IDV*), Masculinity (*MAS*), and the Uncertainty Avoidance Index (*UAI*). In doing so we are able to identify the added value of these variables.
- In the fourth panel the results of an alternative estimation method: the Generalized Method of Moments (GMM). By doing so we have to skip one of the legal dummy variables to avoid singularity. The GMM estimation is a robustness check on the results in the third panel.

In the growth regressions we analyze three growth indicators: economic growth, capital growth and productivity growth. We use the same conditioning set as Levine and Zervos (1998): initial GDP per head (in logs), secondary enrollment, revolution and coups, government expenditure as a percentage of GDP, inflation and the black market premium.

Tables 10 to 14 give the major results of the estimation. We skip the parameters of the other conditioning variables for ease of exposition. We concentrate on the financial variables in various combinations. Table 10 gives the results for the relation between economic growth indicators and the Turnover Rate (*TOR*). The top panel shows that the Levine-Zervos results show a significant impact of both the bank credit and the turnover rate in all the three equations. The second panel shows that this effect vanishes completely if we include the legal instruments. This must be noted as a remarkable result. The third panel shows that inclusion of the societal indicators brings back some effect of bank credit in output and productivity growth, and the turnover rate in the capital stock growth regression. This effect is confirmed by the GMM regression in the lower panel. Note that we include about the same group of countries as Levine and Zervos and that we find similar parameter values when significant.

Table 11 gives the results for the relation between the economic growth indicators and Total Value Traded (*TVT*). Here we find the same pattern as in Table 10 for the other liquidity indicator. The Levine-Zervos results show a significant positive influence of both bank credit and value traded. If we instrument the regression with the legal indicators the results turn out to be insignificant. If we add the societal indicators we find again signs of a significant relation between output and productivity growth and bank credit and capital stock growth and value traded. The GMM results enforce the latter findings.

Table 12 gives the results for the relation between the economic growth indicators and both Total Value Traded (*TVT*) and Market Capitalization (*MCAP*). Levine and Zervos argue that the impact of capitalization is not so robust, but that value traded is robust. This can be seen from the results in the top panel. If we use the legal instruments all variables turn out to be insignificant. The inclusion of societal norms as instruments does not improve the results to a large extent. With GMM we find again some evidence of the significant impact of bank credit on output growth and of value traded on capital stock growth.

Table 13 analyzes the separate impact of Market Capitalization (*MCAP*). We find the same pattern of results. The Levine-Zervos results show a significant impact of capitalization on all economic growth indicators. Using legal instruments the bank credit effect remains in the output and

productivity growth equations, while the capitalization effect vanishes. This result is not changed in a 2SLS estimation with societal norms as additional instruments, although the effects become more pronounced. In the GMM estimation we find a confirmation of these findings. If capitalization is important it is again in the capital stock growth equation.

Table 14 gives finally the results for the Volatility (*VOL*) regressions. Remember that Levine and Zervos use Initial Volatility in their estimation. We use average volatility, for which data on 4 countries more are available: Malaysia, Portugal, Turkey and Taiwan. In order to compare our results with those presented by Levine-Zervos we excluded those 4 countries from the IV- and GMM-regressions. Levine and Zervos conclude that volatility has some but not robust impact on output and capital stock growth (see the top panel). Using the legal instruments we confirm the Levine-Zervos findings for the capital stock growth equation, but not for the other two. The significance of this finding is improved by including the societal variables. In the GMM results it is shown that again bank credit is important and that the volatility indicator has a robust and significant effect on the capital stock growth.

From the results shown above a clear picture arises. First we confirm the finding that legal indicators are helpful in instrumenting economic growth financial development regressions. It is moreover shown that the societal data help in instrumenting financial development. This confirms the legal view of LLSV but extends this view with a societal dimension. The results indicate that if we include bank credit and legal instruments bank credit remains an important determinant even if we consider the exogenous part of the development of the banking sector (see also Beck, Levine and Loayza, 2000). Our results show that especially in output and productivity growth regressions bank credit matters. The third observation is that we need to be careful with the statement that equity market development is crucial to economic growth. Our results do not confirm this view in general. We find evidence for a relation between capital stock growth and equity market development. For all the indicators, using the appropriate instruments, a significant positive effect of the size, liquidity and volatility of the stock market on capital growth is found.

## **5 Summary and conclusions**

This paper analyzes the determinants and consequences of stock market development. We confirm previous findings on the impact of legal determinants of stock market development. We add a second dimension to that: the influence of societal norms. Apparently differences in culture explain differences in legal institutions and give an additional explanation of some indicators of stock market development. Especially with respect to stock markets the issue of being able/unable to write financial contracts is essential. The societal attitude is, besides all kind of legal institutions, of large relevance.

Next we reanalyze the relationship between economic growth, measured by three indicators and stock market development. Levine and Zervos (1998) presented rather optimistic conclusions on the separate impact of stock market development. Our results show that the exogenous part of stock market development, as measured by four indicators, is not really contributing itself a lot to economic growth. This conclusion is in line with Levine (2000) who argues that it is not financial structure, or the choice between bank- and market-based systems, that makes the impact, but the fact that the provision of legal protection is guaranteed. Our results show that one might include societal norms here as well. This analysis shows that the core values of a society, as measured by legal indicators or measures of culture, are the real seeds of economic growth. Financial development seems to be a side product of that. The choice between a bank-oriented or an equity-market oriented model only has marginal value for economic development. If any real capital investment is affected by the stock market development.

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## **Appendix: Definitions of the societal variables**

All variables are defined by Hofstede (1980).

### **PDI: Power Distance Index**

Three questions in the Hofstede survey were used to compute the score on the PDI:

1. Answers by nonmanagerial employees on the question: 'How frequently, in your experience, does the following problem occur: employees being afraid to express disagreement with their managers?' (mean score on a 1-5 scale from 'very frequently' to 'very seldom');
2. Subordinates' perception of their boss's actual decision-making style (percentage choosing either the description of an autocratic or of a paternalistic style, out of four possible styles plus a 'none of these' alternative);
3. Subordinates' preference of their boss's decision-making style (percentage preferring an autocratic or a paternalistic style, or, on the contrary, a style based on majority vote, but not a consultative style).

The PDI is a linear combination of the average scores per country on these three questions.

The IDV and MAS indicators are based on fourteen questions on 'work goals'. People were asked: 'Try to think of those factors, which would be important to you in an ideal job; disregard the extent to which they are contained in your present job. How important is it to you to ...' followed by 14 items, each to be scored on a scale from 1 (of utmost importance to me) to 5 (of very little or no importance). Analyzing the data revealed two dimensions in the answers: IDV and MAS.

For the IDV the individualist pole included the following items:

1. Personal time. Have a job which leaves you sufficient time for your personal or family life.
2. Freedom. Have considerable freedom to adopt your own approach to the job.
3. Challenge. Have challenging work to do—work from which you can achieve a personal sense of accomplishment.

For the opposite, collectivist pole:

4. Training. Have training opportunities (to improve your skills or learn new skills).
5. Physical conditions. Have good physical working conditions (good ventilation, lighting, adequate work space, etc.)
6. Use of skills. Fully use your skills and abilities on the job.

For the masculine pole:

1. Earnings. Have an opportunity for high earnings.
2. Recognition. Get the recognition you deserve when you do a good job.
3. Advancement. Have an opportunity for advancement to higher level jobs.
4. Challenge. Have challenging work to do—work from which you can get a personal sense of accomplishment.

For the feminine pole:

5. Manager. Have a good working relationship with your direct superior.
6. Cooperation. Work with people who cooperate well with one another.
7. Living area. Live in an area desirable to you and your family.
8. Employment security. Have the security that you will be able to work for your company as long as you want.

The Uncertainty Avoidance Index (UAI) was originally discovered as a byproduct of the Power Distance Index. Three questions in the survey were used:

1. Job stress 'How often do you feel nervous or tense at work?' with answers varying from (1) 'I feel always this way' to (5) 'I never feel this way'. (Mean scores 1-5).
2. Rule orientation. Agreement with the statement: 'Company rules should not be broken—even when the employee thinks it is in the company's best interest' (mean score on a 1-5 scale).

Intended length of employment. The percentage of employees expressing their intent to stay with the company for a long-term career. 'How long do you think you will continue working for IBM?' and the answers ran: (1) 'Two years at the most'; (2) 'From two to five years'; (3) 'More than five years (but probably I leave before I retire)'; (4) 'Until I retire'.

**Table 1**  
**Societal Norms and Trust**

This table presents data on measures of societal norms and trust for 43 countries classified by their legal origin. The source of the data for the legal origin is LLSV (1998). The source of the societal norms is Hofstede (1980). See the appendix for a description of the survey questions, on which the indices were constructed. The Power Distance Index (*PDI*) is a summary measure of inequality in society as perceived by the subordinated employee. The index ranges from 11 for Austria to 104 for Malaysia. The Individualism Index (*IDV*) measure individualism (high scores) versus collectivism (low scores) of a country culture. Its range varies from 6 for Guatemala to 91 for the USA. The Masculinity Index (*MAS*) measures autonomy (high scores) versus modesty (low scores). Its score ranges from 5 for Sweden to 95 for Japan. The Uncertainty Avoidance Index (*UAI*) measures the extent to which the members of a culture feel threatened by uncertain or unknown situations. Its score varies from 8 for Singapore to 112 for Greece. See for definitions Section 3. For the trust data see Inglehart, Basanez and Moreno (1998). The figures represent the percentages of positive answers on the question: “Do you generally trust people?”. The upper panel gives the raw data and the sample means of the subgroups. The subgroups are English-origin, French-origin, German-origin, Scandinavian-origin countries. We give the total sample (world) means as well. The lower panel gives P-values of the t-test of equality of sample means among the subgroups. High P-values indicate no significant difference.

Country	PDI	IDV	MAS	UAI	TRUST
Australia		36	90	61	51
Canada		39	80	52	48
Great Britain		35	89	66	35
Hong Kong		68	25	57	29
India		77	48	56	40
Israel		13	54	47	81
Jamaica		45	39	68	13
Malaysia		104	26	50	36
Nigeria		77	20	46	54
New Zealand		22	79	58	49
Pakistan		55	14	50	70
Singapore		74	20	48	8
Thailand		64	20	34	64
United States		40	91	62	46
<i>English-origin average</i>		53.50	49.64	53.93	44.57
					45.75
Argentina		49	46	56	86
Belgium		65	75	54	94
Brazil		69	38	49	76

Chile	63	23	28	86	23
Colombia	67	13	64	80	
Egypt	80	38	53	68	
<b>Country</b>	<i>PDI</i>	<i>IDV</i>	<i>MAS</i>	<i>UAI</i>	<i>TRUST</i>
Spain	57	51	42	86	32
France	68	71	43	86	23
Greece	60	35	57	112	
Indonesia	78	14	46	48	
Italy	50	76	70	75	34
Jordan	80	38	53	68	
Morocco	80	38	53	68	
Mexico	81	30	69	82	34
Netherlands	38	80	14	53	56
Peru	64	16	42	87	
Philippines	94	32	64	44	
Portugal	63	27	31	104	21
Turkey	66	37	45	85	10
Venezuela	81	12	73	76	
<i>French-origin average</i>	67.65	39.50	50.30	78.20	26.91
Austria	11	55	79	70	32
Germany	35	67	66	65	38
Japan	54	46	95	92	42
Korea	60	18	39	85	34
Taiwan	58	17	45	69	
<b>German-origin average</b>	43.6	40.6	64.8	76.2	36.5
Denmark	18	74	16	23	58
Finland	33	63	26	59	63
Norway	31	69	8	50	65
Sweden	31	71	5	29	66
<b>Scandinavian-origin average</b>	31.32	63.52	23.96	47.44	57.7
<b>Sample means</b>	57.31	47.17	50.32	64.59	40.64
<b>P-values on equal means</b>					
Common versus civil	0.57	0.50	0.22	0.00	0.11
English versus French	0.72	0.62	0.13	0.86	0.01
English versus German	0.41	0.50	0.36	0.00	0.11
English versus Scandinavian	0.00	0.03	0.00	0.68	0.02
French versus German	0.06	0.92	0.24	0.76	0.06
French versus Scandinavian	0.00	0.00	0.00	0.01	0.00
German versus Scandinavian	0.22	0.73	0.20	0.43	0.00

**Table 2**  
**Shareholder rights and societal origin**

The investor protection measures are taken from LLSV (1998). The societal origin is based on a factor analysis on the 4 societal norms *PDI*, *IDV*, *MAS*, and *UAI* (see section 3). *ONE*: **One share-one vote**: equals 1 if it is not allowed to separate voting rights from dividend rights; *PROXY*: **Proxy voting by mail** allowed: is 1 if so; *BLOCK*: **Shares blocked before the shareholder meeting**: is 1 if law does not require depositing shares several days prior to the meeting to avoid trade; *VOTE*: **Cumulative voting for directors**: some countries allow cumulative voting for directors, which gives more power to minority shareholders; *OPP*: **Oppressed minority**: give minority shareholders legal mechanisms to be used against perceived oppression; *PRE*: **Preemptive rights to new issues**: is 1 if so; *PERC*: **Percentage of capital needed** to call an extraordinary shareholder. The higher this percentage the lower the legal protection. We use a dummy variable: if *PERC* is less or equal than 10%, the dummy variable equals 1; *ANTI*: **Anti-director rights**: summation of *ONE*, *BLOCK*, *VOTE*, *OPP*, *PRE* and *PERC*; *MAND*: **Mandatory dividend**: some law code requires distribution of a minimum dividend percentage. The lower panel gives P-values of the t-test of equality of sample means among the subgroups. High P-values indicate no significant difference.



## Country

	ONE	PROXY	BLOCK	VOTE	OPP	PRE	PERC	ANTI	MANL
Denmark	0	0	1	0	0	0	1	2	(
Finland	0	0	1	0	0	1	1	3	(
Netherlands	0	0	0	0	0	1	1	2	(
Norway	0	1	1	0	0	1	1	4	(
Sweden	0	0	1	0	0	1	1	3	(
<b>Nordic-origin</b>	0.00	0.20	0.80	0.00	0.00	0.80	1.00	2.80	0.00
Australia	0	1	1	0	1	0	1	4	(
Canada	0	1	1	1	1	0	1	5	(
Great Britain	0	1	1	0	1	1	1	5	(
New Zealand	0	1	1	0	1	0	1	4	(
United States	0	1	1	1	1	0	1	5	(
<b>Anglo-Saxon-origin</b>	0.00	1.00	1.00	0.40	1.00	0.20	1.00	4.60	0.00
Argentina	0	0	0	1	1	1	1	4	(
Austria	0	0	0	0	0	1	1	2	(
Belgium	0	0	0	0	0	0	0	0	(
Brazil	1	0	1	0	1	0	1	3	0.5
Germany	0	0	0	0	0	0	1	1	(
Spain	0	0	0	0	1	1	1	4	(
France	0	1	0	0	0	1	1	3	(
Israel	0	0	1	0	1	0	1	3	(
Italy	0	0	0	0	0	1	0	1	(
<b>Continental-origin</b>	0.11	0.11	0.22	0.11	0.44	0.56	0.78	2.33	0.00
Hong Kong	0	1	1	0	1	1	1	5	(
India	0	0	1	1	1	1	1	5	(
Japan	1	0	1	1	1	0	1	4	(
Pakistan	1	0	1	1	1	1	1	5	(
Singapore	1	0	1	0	1	1	1	4	(
Thailand	0	0	1	1	0	0	0	2	(
Turkey	0	0	1	1	0	0	1	2	(
Taiwan	0	0	0	1	1	0	1	3	(
<b>Asian-origin</b>	0.38	0.13	0.88	0.75	0.75	0.50	0.88	3.75	0.00
Chile	1	0	1	1	1	1	1	5	0.5
Colombia	0	0	1	1	0	1	0	3	0.5
Egypt	0	0	1	0	0	0	1	2	(
Greece	1	0	0	0	0	1	1	2	0.35
Indonesia	0	0	1	0	0	0	1	2	(
Jordan	1	0	1	0	0	0	0	1	(
Korea	1	0	0	0	1	0	1	2	(
Mexico	0	0	0	0	0	1	0	1	(
Malaysia	1	0	1	0	1	1	1	4	(
Nigeria	0	0	1	0	1	0	1	3	(
Peru	1	0	1	1	0	1	0	3	(
Philippines	0	0	1	1	1	0	1	2	(
Portugal	0	0	1	0	0	1	1	3	(
Venezuela	0	0	1	0	0	0	0	1	(

<b>Other origin</b>	0.43	0.00	0.79	0.29	0.36	0.50	0.64	2.43	0.00
<b>Sample average</b>	0.24	0.20	0.71	0.32	0.49	0.51	0.80	2.98	0.00
<b>P-values</b>									
Nordic versus Anglo-Saxon	1.00	0.02	0.37	0.18	0.00	0.07	1.00	0.01	1.00
Nordic versus Continental	0.35	0.71	0.05	0.35	0.04	0.38	0.17	0.45	0.30
Nordic versus Asian	0.07	0.75	0.99	0.00	0.00	0.29	0.26	0.19	0.30
Nordic versus Other	0.01	0.37	0.95	0.04	0.02	0.25	0.02	0.46	0.00
Anglo-Saxon versus Continental	0.35	0.00	0.00	0.33	0.01	0.21	0.17	0.00	0.30
Anglo-Saxon versus Asian	0.08	0.00	0.35	0.27	0.17	0.30	0.35	0.13	1.00
Anglo-Saxon versus Other	0.01	0.00	0.08	0.69	0.00	0.25	0.02	0.00	0.00
Continental versus Asian	0.24	0.93	0.00	0.01	0.22	0.83	0.62	0.05	0.30
Continental versus Other	0.09	0.35	0.01	0.31	0.70	0.81	0.50	0.87	0.70
Asian versus Other	0.82	0.35	0.60	0.04	0.08	1.00	0.22	0.03	0.00

**Table 3**  
**Creditor rights and societal origin**

The investor protection measures are taken from LLSV (1998). The societal origin is based on a factor analysis on the 4 societal norms *PDI*, *IDV*, *MAS*, and *UAI* (see section 3). ***AUTO*: No automatic stay** on assets of the firm in case of a reorganization petition. This relates to bankers from gaining possession of collateral; ***SEC*: Secured creditors** are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; ***RES*: Restrictions for going into reorganization**; ***MAN*: Management of the firm does not stay** pending a reorganization; ***CRED*: Creditor rights**: sum of the dummy-values on *AUTO*, *SEC*, *RES* and *MAN*; ***LEG*: Legal reserve required as a percentage of capital**. The lower panel gives P-values of the t-test of equality of sample means among the subgroups. High P-values indicate no significant difference.

<b>Country</b>	<i>RES</i>	<i>AUTO</i>	<i>SEC</i>	<i>MAN</i>	<i>LEG</i>	<i>CRED</i>
Denmark	1	1	1	0	0.25	3
Finland	0	0	1	0	0	1
Netherlands	1	0	1	0	0	2
Norway	1	0	1	0	0.2	2
Sweden	1	0	1	0	0.2	2
<i>Nordic-origin</i>	0.80	0.20	1.00	0.00	0.13	2.00
Australia	0	0	1	0	0	1
Canada	0	0	1	0	0	1
Great Britain	1	1	1	1	0	4
New Zealand	1	1	0	1	0	3
United States	0	0	1	0	0	1
<i>Anglo-Saxon-origin</i>	0.40	0.40	0.80	0.40	0.00	2.00
Argentina	0	0	1	0	0.2	1
Austria	1	0	1	0	0.1	2
Belgium	0	1	1	0	0.1	2
Brazil	1	0	0	0	0.2	1
Germany	1	1	1	0	0.1	3
Spain	0	1	1	0	0.2	2
France	0	0	0	0	0.1	0
Israel	1	1	1	1	0	4
Italy	1	0	1	0	0.2	2
<i>Continental-origin</i>	0.56	0.44	0.78	0.11	0.13	1.89
Hong Kong	1	1	1	1	0	4
India	1	1	1	1	0	4
Japan	0	0	1	1	0.25	2

Pakistan	1	1	1	1	0	4
Singapore	1	1	1	1	0	4
Thailand	0	1	1	1	0.1	3
Turkey	1	0	1	0	0.2	2
Taiwan	0	1	1	0	1	2
<i>Asian-origin</i>	0.63	0.75	1.00	0.75	0.19	3.13
Chile	1	0	1	0	0.2	2
Colombia	0	0	0	0	0.5	0
Egypt	1	1	1	1	0.5	4
Greece	0	0	0	1	0.33	1
Indonesia	1	1	1	1	0	4
Jordan					0.25	0
Korea	0	1	1	1	0.5	3
Mexico	0	0	0	0	0.2	0
Malaysia	1	1	1	1	0	4
Nigeria	1	1	1	1	0	4
Peru	0	0	0	0	0.2	0
Philippines	0	0	0	0	0	0
Portugal	0	0	1	0	0.2	1
Venezuela			1		0.1	1
<i>Other origin</i>	0.42	0.42	0.62	0.50	0.21	1.71
<b>Sample average</b>	0.51	0.44	0.78	0.37	0.16	2.10
<i>P-values</i>						
Nordic versus Anglo-Saxon	0.24	0.55	0.37	0.18	0.07	1.00
Nordic versus Continental	0.38	0.38	0.17	0.35	0.96	0.83
Nordic versus Asian	0.50	0.07	0.35	0.00	0.64	0.06
Nordic versus Other	0.16	0.41	0.02	0.01	0.28	0.62
Anglo-Saxon versus Continental	0.62	0.89	0.93	0.33	0.00	0.89
Anglo-Saxon versus Asian	0.48	0.27	0.37	0.27	0.15	0.17
Anglo-Saxon versus Other	0.96	0.96	0.47	0.74	0.00	0.72
Continental versus Asian	0.79	0.22	0.17	0.01	0.64	0.03
Continental versus Other	0.55	0.91	0.43	0.05	0.17	0.78
Asian versus Other	0.39	0.15	0.02	0.28	0.89	0.02

**Table 4****Enforcement and societal origin**

The investor protection measures are taken from LLSV (1998). The societal origin is based on a factor analysis on the 4 societal norms PDI, IDV, MAS, and UAI (see section 3). **EFF: Efficiency of the judicial system:** ranges from 1 (bad) to 10 (good); **RULE: Rule of law:** ranges from 1 (bad) to 10 (good); **COR: Corruption:** ranges from 1 (bad) to 10 (good); **EXP: Risk of expropriation:** ranges from 1 (bad) to 10 (good); **REP: Risk of contract repudiation:** ranges from 1 (bad) to 10 (good); **ACC: Accounting standards:** index on the degree of detail in annual reports (see Levine, 1998). Varies between 0 (bad) to 90 (good). The lower panel gives P-values of the t-test of equality of sample means among the subgroups. High P-values indicate no significant difference.

<b>Country</b>	<i>EFF</i>	<i>RULE</i>	<i>COR</i>	<i>EXP</i>	<i>REP</i>	<i>ACC</i>
Denmark	10	10	10.00	9.67	9.31	62
Finland	10	10	10.00	9.67	9.15	77
Netherlands	10	10	10.00	9.98	9.35	64
Norway	10	10	10.00	9.88	9.71	74
Sweden	10	10	10.00	9.4	9.58	83
<i>Nordic-origin</i>	10.00	10.00	10.00	9.72	9.35	72.00
Australia	10	10	8.51	9.27	8.96	75
Canada	9.25	10	10.00	9.67	8.96	74
Great Britain	10	8.57	9.11	9.71	9	78
New Zealand	10	10	10.00	9.69	9.29	70
United States	10	10	8.63	9.98	9	71
<i>Anglo-Saxon-origin</i>	9.85	9.71	9.25	9.66	9.04	73.60
Argentina	6	5.35	6.01	5.91	4.91	45
Austria	9.5	10	8.57	9.69	9.6	54
Belgium	9.5	10	8.81	9.63	9.48	61
Brazil	5.75	6.32	6.31	7.62	6.3	54
Germany	9	9.23	8.93	9.9	9.77	62
Spain	6.25	7.8	7.38	9.52	8.4	64
France	8	8.98	9.05	9.65	9.19	69
Israel	10	4.82	8.33	8.25	7.54	64
Italy	6.75	8.33	6.13	9.35	9.17	62
<i>Continental-origin</i>	7.86	7.87	7.73	8.84	8.26	59.44
Hong Kong	10	8.22	8.52	8.29	8.82	69
India	8	4.17	4.58	7.75	6.11	57
Japan	10	8.98	8.51	9.67	9.69	65
Pakistan	5	3.03	2.98	5.62	4.87	
Singapore	10	8.57	8.22	9.3	8.86	78
Thailand	3.25	6.25	5.18	7.42	7.57	64

Turkey	4	5.18	5.18	7	5.95	51
Taiwan	6.75	8.52	6.85	9.12	9.16	65
<i>Asian-origin</i>	7.13	6.62	6.25	8.02	7.63	64.14
Chile	7.25	7.02	5.30	7.5	6.8	52
Colombia	7.25	2.08	5.00	6.95	7.02	50
Egypt	6.5	4.17	3.87	6.3	6.05	24
Greece	7	6.18	7.26	7.12	6.62	55
Indonesia	2.5	3.98	2.15	7.16	6.09	
Jordan	8.66	4.35	5.48	6.07	4.86	
Korea	6	5.35	5.30	8.31	8.59	62
Mexico	6	5.35	4.76	7.29	6.55	60
Malaysia	9	6.78	7.38	7.95	7.43	76
Nigeria	7.25	2.73	3.03	5.33	4.36	59
Peru	6.75	2.5	4.70	5.54	4.68	38
Philippines	4.75	2.73	2.92	5.22	4.8	65
Portugal	5.5	8.68	7.38	8.9	8.57	36
Venezuela	6.5	6.37	4.70	6.89	6.3	40
<i>Other origin</i>	6.49	4.88	4.95	6.90	6.16	51.42
<b>Sample average</b>	7.75	7.09	6.95	8.22	7.27	56.80
<b>P-value</b>						
Nordic versus Anglo-Saxon	0.37	0.37	0.08	0.72	0.03	0.72
Nordic versus Continental	0.01	0.01	0.00	0.09	0.09	0.03
Nordic versus Asian	0.01	0.00	0.00	0.01	0.02	0.12
Nordic versus Other	0.00	0.00	0.00	0.00	0.00	0.00
Anglo-Saxon versus Continental	0.01	0.03	0.01	0.10	0.21	0.00
Anglo-Saxon versus Asian	0.03	0.01	0.00	0.01	0.06	0.03
Anglo-Saxon versus Other	0.00	0.00	0.00	0.00	0.00	0.00
Continental versus Asian	0.53	0.25	0.11	0.23	0.47	0.27
Continental versus Other	0.07	0.00	0.00	0.00	0.01	0.12
Asian versus Other	0.57	0.10	0.15	0.07	0.07	0.03

**Table 5**  
**Societal and legal origin**

Legal origin is taken from LLSV(1998). The Societal origin is based on a one-dimensional factor analysis of the Power Distance Indicator (PDI), Individualism (IDV), Masculinity (MAS), and Uncertainty Avoidance Index (UAI). See Table 1 for the raw data on the societal data (taken from Hofstede, 1980).

<b>Country</b>	<b>Common Law Origin</b>	<b>French Civil Law Origin</b>	<b>German Civil Law Origin</b>	<b>Scandinavian Civil Law Origin</b>
Denmark	0	0		1
Finland	0	0	0	1
Netherlands	0	1	0	0
Norway	0	0	0	1
Sweden	0	0	0	1
<i>Nordic-origin</i>	0.00	0.20	0.00	0.80
Australia	1	0	0	0
Canada	1	0	0	0
Great Britain	1	0	0	0
New Zealand	1	0	0	0
United States	1	0	0	0
<i>Anglo-Saxon-origin</i>	1.00	0.00	0.00	0.00
Argentina	0	1	0	0
Austria	0	0	1	0
Belgium	0	1	0	0
Brazil	0	1	0	0
Germany	0	0	1	0
Spain	0	1	0	0
France	0	1	0	0
Israel	1	0	0	0
Italy	0	1	0	0
<i>Continental-origin</i>	0.11	0.67	0.22	0.00
Hong Kong	1	0	0	0
India	1	0	0	0
Japan	0	0	1	0
Pakistan	1	0	0	0
Singapore	1	0	0	0
Thailand	1	0	0	0
Turkey	0	1	0	0
Taiwan	0	0	1	0
<i>Asian-origin</i>	0.63	0.13	0.25	0.00
Chile	0	1	0	0
Colombia	0	1	0	0
Egypt	0	1	0	0

Greece	0	1	0	0
Indonesia	0	1	0	0
Jordan	0	1	0	0
Korea	0	0	1	0
Mexico	0	1	0	0
Malaysia	1	0	0	0
Nigeria	1	0	0	0
Peru	0	1	0	0
Philippines	0	1	0	0
Portugal	0	1	0	0
Venezuela	0	1	0	0
<i>Other origin</i>	0.14	0.79	0.07	0.00
 <i>Sample average</i>	 0.32	 0.46	 0.12	 0.10
 <i>P-values</i>				
Nordic versus Anglo-Saxon	0.00	0.37	1.00	0.02
Nordic versus Continental	0.35	0.11	0.17	0.02
Nordic versus Asian	0.01	0.95	0.13	0.02
Nordic versus Other	0.16	0.04	0.34	0.02
Anglo-Saxon versus Continental	0.00	0.00	0.17	1.00
Anglo-Saxon versus Asian	0.08	0.35	0.17	1.00
Anglo-Saxon versus Other	0.00	0.00	0.34	1.00
Continental versus Asian	0.03	0.02	0.90	1.00
Continental versus Other	0.83	0.56	0.37	1.00
Asian versus Other	0.04	0.00	0.34	1.00



**Table 6**  
**Estimation results for Market Capitalization *MCAP***

White corrected standard errors between parentheses. The definitions of all the variables are in Section 3.

Variables	(1)	(2)	(3)	(4)	(5)
(6)					
Constant	-0.4820	-0.9161	-1.4947	-1.4514	-0.9558
-1.2773					
	(0.2290)	(0.2931)	(0.2810)	(0.2978)	(0.3526)
(0.3606)					
Initial output	-0.0198	0.0164	0.1309	0.1569	0.0616
0.0414					
	(0.0376)	(0.0354)	(0.0457)	(0.0371)	(0.0540)
(0.0373)					
Output growth	6.3777	7.9993	5.1312	5.8225	4.2298
5.7824					
	(2.3921)	(2.1462)	(1.4138)	(1.5521)	(2.1986)
(2.2831)					
Efficiency of judicial system	0.0813	0.0860	0.0501	0.0608	0.0795
0.0926					
	(0.0237)	(0.0235)	(0.0208)	(0.0178)	(0.0257)
(0.0240)					
Antidirector rights	0.0501		0.0618		0.0440
0.0670					
	(0.0210)		(0.0164)		(0.0207)
(0.0195)					
Common law origin		0.3320		0.3012	
		(0.1275)		(0.0676)	
Scandinavian origin		-0.0310		-0.0749	
		(0.1190)		(0.0976)	
French legal origin		0.2355		0.2121	
		(0.1216)		(0.0938)	
Power Distance			0.0061	0.0035	
			(0.0018)	(0.0016)	
Individualism			-0.0035	-0.0057	
			(0.0019)	(0.0019)	
Masculinity			0.0028	0.0012	
			(0.0013)	(0.0018)	
Uncertainty avoidance			-0.0045	-0.0050	
			(0.0011)	(0.0010)	
Nordic					-0.3916
					(0.1371)
Anglo-Saxon					-0.1790
					(0.1390)
Continental					-0.2218

Asian					(0.1187)
Factor					0.0872
	0.0059				(0.1133)
	(0.0019)				
Adjusted R <sup>2</sup>	0.5219	0.6156	0.7786	0.8321	0.5940
0.5971					
Observations	41	41	40	40	40
40					

**Table 7**  
**Estimation results for Turnover *TOR***

White corrected standard errors between parentheses. The definitions of all the variables are in Section 3.

Variables	(1)	(2)	(3)	(4)	(5)
(6)					
Constant	-0.1915	0.5402	0.2477	1.0264	0.0386
-0.0209					
(0.2341)		(0.4039)	(0.4593)	(0.6477)	(0.3419)
(0.4711)					
Initial output	0.0612	0.0580	0.0391	0.0587	0.0239
0.0513					
(0.0376)		(0.0353)	(0.0781)	(0.0598)	(0.0555)
(0.0585)					
Output growth	8.1630	4.2805	8.6780	1.7148	7.3252
8.6421					
(3.6491)		(2.0710)	(3.4426)	(2.4016)	(2.8904)
(3.8849)					
Efficiency of judicial system	-0.0202	-0.0453	-0.0280	-0.0478	-0.0133
-0.0261					
(0.0275)		(0.0247)	(0.0319)	(0.0271)	(0.0324)
(0.0283)					
Antidirector rights	-0.0052		-0.0140		-0.0476
-0.0092					
(0.0282)			(0.0291)		(0.0402)
(0.0295)					
Common law origin		-0.3944		-0.5736	
		(0.2641)		(0.3195)	
Scandinavian origin		-0.4997		-0.9374	
		(0.2419)		(0.4429)	
French legal origin		-0.5678		-0.7726	
		(0.2668)		(0.3306)	
Power Distance			-0.0039	0.0020	
			(0.0029)	(0.0040)	
Individualism			-0.0039	0.0013	
			(0.0037)	(0.0027)	
Masculinity			0.0023	-0.0062	
			(0.0019)	(0.0040)	
Uncertainty avoidance			-0.0008	-0.0012	
			(0.0021)	(0.0022)	
Nordic					-0.3916
					(0.1371)
Anglo-Saxon					-0.1790
					(0.1390)
Continental					-0.2218

Asian					(0.1187)
Factor					0.0872
	-0.0016				(0.1133)
	(0.0022)				
Adjusted R <sup>2</sup>	0.1793	0.3579	0.1046	0.3478	0.1779
	0.1472				
Observations	41	41	40	40	40
	40				

**Table 8**  
**Estimation results for Total Volume Traded *TVT***

White corrected standard errors between parentheses. The definitions of all the variables are in Section 3.

Variables	(1)	(2)	(3)	(4)	(5)
(6)					
Constant	-0.3150	-0.0137	-0.6047	-0.1768	-0.5459
-0.7039	(0.1043)	(0.2400)	(0.1599)	(0.3600)	(0.1718)
(0.1837)					
Initial output	0.0198	0.0162	0.0751	0.0773	0.0627
0.0514	(0.0160)	(0.0130)	(0.0277)	(0.0232)	(0.0301)
(0.0232)					
Output growth	5.0645	3.6954	4.6079	2.1427	3.4049
5.0168	(2.2745)	(1.6062)	(2.1516)	(1.4502)	(1.5869)
	(2.3559)				
Efficiency of judicial system	0.0124	0.0108	0.0033	0.0006	0.0099
0.0161	(0.0101)	(0.0100)	(0.0105)	(0.0103)	(0.0148)
(0.0103)					
Antidirector rights	0.0204		0.0242		0.0300
0.0282	(0.0120)		(0.0111)		(0.0156)
(0.0129)					
Common law origin		-0.1385		-0.1874	
		(0.1772)		(0.2123)	
Scandinavian origin		-0.2566		-0.3878	
		(0.1573)		(0.2768)	
French legal origin		-0.2144		-0.2914	
		(0.1777)		(0.2217)	
Power Distance			0.0004	0.0023	
			(0.0014)	(0.0018)	
Individualism			-0.0027	-0.0020	
			(0.0019)	(0.0013)	
Masculinity			0.0020	-0.0016	
			(0.0009)	(0.0023)	
Uncertainty avoidance			-0.0014	-0.0018	
			(0.0009)	(0.0012)	
Nordic					-0.1479
					(0.0603)
Anglo-Saxon					-0.0280
					(0.0743)
Continental					-0.0935
					(0.0574)
Asian					0.1778
					(0.1119)
Factor					
0.0026					

	(0.0009)				
Adjusted R <sup>2</sup> 0.3219	0.3011	0.3687	0.3165	0.3781	0.3785
Observations 41	42	42	41	41	41

**Table 9****Estimation results for Volatility *VOL***

White corrected standard errors between parentheses. The definitions of all the variables are in Section 3.

Variables	(1)	(2)	(3)	(4)	(5)
(6)					
Constant	0.1343	0.1995	0.1137	0.2432	0.1566
0.0895	(0.0443)	(0.0672)	(0.1081)	(0.1487)	(0.0886)
(0.0921)					
Initial output	0.0104	0.0033	0.0136	0.0009	0.0030
0.0138	(0.0104)	(0.0078)	(0.0138)	(0.0129)	(0.0130)
(0.0128)					
Output growth	-0.5141	-0.6738	-0.6200	-0.7150	-0.3623
-0.5067	(0.5484)	(0.5691)	(0.6433)	(0.8105)	(0.5004)
	(0.6019)				
Efficiency of judicial system	-0.0196	-0.0157	-0.0176	-0.0150	-0.0176
-0.0188	(0.0096)	(0.0076)	(0.0089)	(0.0076)	(0.0086)
(0.0095)					
Antidirector rights	0.0049		0.0059		0.0072
0.0059	(0.0073)		(0.0079)		(0.0107)
(0.0078)					
Common law origin		-0.0314		-0.0034	
		(0.0267)		(0.0408)	
Scandinavian origin		-0.0149		-0.0269	
		(0.0249)		(0.0546)	
French legal origin		-0.0166		-0.0143	
		(0.0260)		(0.0454)	
Power Distance			-0.0001	0.0003	
			(0.0005)	(0.0007)	
Individualism			-0.0004	0.0000	
			(0.0005)	(0.0006)	
Masculinity			0.0000	-0.0002	
			(0.0003)	(0.0006)	
Uncertainty avoidance			0.0001	0.0000	
			(0.005)	(0.0006)	
Nordic					0.0202
					(0.0275)
Anglo-Saxon					-0.0012
					(0.0305)
Continental					0.0384
					(0.0344)
Asian					0.0004

Factor					(0.0300)
0.0003					
(0.0004)					
Adjusted R <sup>2</sup>	0.1858	0.1436	0.0781	0.0044	0.1324
0.1597					
Observations	36	36	35	35	35
35					



**Table 10**  
**Turnover, Banks, and Growth, 1976-1993**

Independent variables		Dependent variables	
		Output Growth	Capital Stock
Growth			Productivity
		Growth	
<b>Levine-Zervos results</b>			
Bank Credit	0.0131 (0.0055)	0.0148 (0.0063)	0.0111 (0.0046)
Turnover	0.0269 (0.0090)	0.0222 (0.0094)	0.0201 (0.0088)
R <sup>2</sup>	0.5038	0.5075	0.4027
Observations	42	41	41
<b>With IV: <i>CR</i>, <i>ADR</i>, <i>EFF</i>, Legal Origin</b>			
Bank Credit	0.0141 (0.0150)	0.0020 (0.0173)	0.0163 (0.0129)
Turnover	0.0280 (0.0196)	0.0297 (0.0176)	0.0190 (0.0192)
Adjusted R <sup>2</sup>	0.4877	0.3563	0.3381
Observations	41	41	41
<b>With IV: <i>CR</i>, <i>ADR</i>, <i>EFF</i>, Legal Origin and Societal Norms</b>			
Bank Credit	0.0217 (0.0124)	0.0107 (0.0132)	0.0181 (0.0113)
Turnover	0.0259 (0.0210)	0.0332 (0.0170)	0.0178 (0.0183)
Adjusted R <sup>2</sup>	0.4466	0.3360	0.3217
Observations	40	40	40
<b>With GMM: <i>CR</i>, <i>ADR</i>, <i>EFF</i>, Legal Origin and Societal Norms</b>			
Bank Credit	0.0243 (0.0083)	0.0187 (0.0086)	0.0145 (0.0075)
Turnover	0.0025 (0.0124)	0.0307 (0.0129)	-0.0095 (0.0097)
Adjusted R <sup>2</sup>	0.2964	0.3026	-0.0966
J-statistic	0.1596	0.1289	0.1821
Observations	40	40	40

*Notes:* Heteroskedasticity-consistent standard errors between parentheses. Output growth = real per capita GDP growth; Capital Stock Growth = real per capita stock growth; Productivity Growth = Output Growth – (0.3)\*(Capital Stock Growth). Bank Credit = bank credit to the private sector as a percentage of GDP; Turnover = Value of the trades of domestic shares as a share of market capitalization. Other explanatory variables included: Initial Output, Enrollment, Revolutions and Coups, Government Expenditure, Inflation, and the Black Market Premium. Instruments used in 2SLS and GMM: *EFF*: Efficiency of the Judicial System; *CR*: Creditor Rights; *ADR*: Antidirector rights; Common Law origin, Scandinavian Origin, French Origin, German Origin, Power Distance, Individualism, Masculinity, and Uncertainty Avoidance.

**Table 11**  
**Value Traded, Banks, and Growth, 1976-1993**

		Dependent variables	
Independent variables	Output Growth	Capital Stock	Productivity
Growth		Growth	
Levine-Zervos results			
Bank Credit	0.0146 (0.0056)	0.0148 (0.0061)	0.0125 (0.0047)
Value Traded	0.0954 (0.0315)	0.0927 (0.0324)	0.0736 (0.0220)
R <sup>2</sup>	0.4655	0.5224	0.3726
Observations	43	42	42
With IV: CR, ADR, EFF, Legal Origin			
Bank Credit	0.0160 (0.0196)	0.0141 (0.0283)	0.0188 (0.0176)
Value Traded	0.0479 (0.0501)	0.0241 (0.0621)	0.0320 (0.0444)
Adjusted R <sup>2</sup>	0.4784	0.4481	0.2805
Observations	42	42	42
With IV: CR, ADR, EFF, Legal Origin and Societal Norms			
Bank Credit	0.0213 (0.0143)	-0.0134 (0.0201)	0.0302 (0.0166)
Value Traded	0.0387 (0.0328)	0.0941 (0.0491)	0.0023 (0.0325)
Adjusted R <sup>2</sup>	0.4709	0.2150	0.2335
Observations	41	41	41
With GMM: CR, ADR, EFF, Legal Origin and Societal Norms			
Bank Credit	0.0264 (0.0111)	-0.0020 (0.0106)	0.0191 (0.0102)
Value Traded	0.0039 (0.0223)	0.0737 (0.0263)	-0.0091 (0.0184)
Adjusted R <sup>2</sup>	0.3206	0.3356	0.0746
J-statistic	0.1581	0.1183	0.1752
Observations	41	41	41

*Notes:* Heteroskedasticity-consistent standard errors between parentheses. Output growth = real per capita GDP growth; Capital Stock Growth = real per capita stock growth; Productivity Growth = Output Growth – (0.3)\*(Capital Stock Growth). Bank Credit = bank credit to the private sector as a percentage of GDP; Value Traded = Value of the trades of domestic shares as a share of GDP. Other explanatory variables included: Initial Output, Enrollment, Revolutions and Coups, Government Expenditure, Inflation, and the Black Market Premium. Instruments used in 2SLS and GMM: *EFF*: Efficiency of the Judicial System; *CR*:

Creditor Rights; ADR: Antidirector rights; Common Law origin, Scandinavian Origin, French Origin, German Origin, Power Distance, Individualism, Masculinity, and Uncertainty Avoidance.

**Table 12**  
**Value Traded, Capitalization, Banks, and Growth, 1976-1993**

Independent variables		Dependent variables	
		Output Growth	Capital Stock
Growth			Productivity
		Growth	
<b>Levine-Zervos results</b>			
Bank Credit	0.0083 (0.0054)	0.0111 (0.0055)	0.0086 (0.0046)
Capitalization	0.0148 (0.0068)	0.0088 (0.0092)	0.0070 (0.0056)
Value Traded	0.0700 (0.0322)	0.0780 (0.0382)	0.0592 (0.0227)
Adjusted R <sup>2</sup>	0.5186	0.5297	0.4083
Observations	42	41	41
<b>With IV: <i>CR</i>, <i>ADR</i>, <i>EFF</i>, Legal Origin</b>			
Bank Credit	0.0041 (0.0238)	0.0049 (0.0314)	0.0086 (0.0219)
Capitalization	-0.0007 (0.0140)	-0.0153 (0.0185)	0.0014 (0.0129)
Value Traded	0.0642 (0.0482)	0.0469 (0.0636)	0.0444 (0.0443)
Adjusted R <sup>2</sup>	0.4413	0.3540	0.2402
Observations	41	41	41
<b>With IV: <i>CR</i>, <i>ADR</i>, <i>EFF</i>, Legal Origin and Societal Norms</b>			
Bank Credit	0.0130 (0.0208)	-0.0163 (0.0318)	0.0208 (0.0193)
Capitalization	-0.0003 (0.0120)	-0.0008 (0.0183)	-0.0034 (0.0112)
Value Traded	0.0512 (0.0423)	0.0993 (0.0647)	0.0201 (0.0394)
Adjusted R <sup>2</sup>	0.4478	0.1222	0.2722
Observations	40	40	40

**Table 12 (continued)**  
**Value Traded, Capitalization, Banks, and Growth, 1976-1993**

Independent variables	Dependent variables		
	Output Growth	Capital Stock Growth	Productivity
Growth			
<b>With GMM: <i>CR</i>, <i>ADR</i>, <i>EFF</i>, Legal Origin and Societal Norms</b>			
Bank Credit	0.0250 (0.0127)	-0.0072 (0.0129)	0.0165 (0.0103)
Capitalization	0.0230 (0.0120)	-0.0048 (0.0172)	0.0149 (0.0140)
Value Traded	-0.0324 (0.0409)	0.0921 (0.0517)	-0.0371 (0.0341)
Adjusted R <sup>2</sup>	0.0794	0.1817	-0.2598
J-statistic	0.1519	0.1132	0.1794
Observations	40	40	40

*Notes:* Heteroskedasticity-consistent standard errors between parentheses. Output growth = real per capita GDP growth; Capital Stock Growth = real per capita stock growth; Productivity Growth = Output Growth – (0.3)\*(Capital Stock Growth). Bank Credit = bank credit to the private sector as a percentage of GDP; Capitalization = value of domestic shares as a share of GDP; Value traded = Value of the trades of domestic shares as a share of GDP. Other explanatory variables included: Initial Output, Enrollment, Revolutions and Coups, Government Expenditure, Inflation, and the Black Market Premium. Instruments used in 2SLS and GMM: *EFF*: Efficiency of the Judicial System; *CR*: Creditor Rights; *ADR*: Antidirector rights; Common Law origin, Scandinavian Origin, French Origin, German Origin, Power Distance, Individualism, Masculinity, and Uncertainty Avoidance.

**Table 13**  
**Capitalization, Banks, and Growth, 1976-1993**

		Dependent variables	
Independent variables	Output Growth	Capital Stock	Productivity
Growth		Growth	
Levine-Zervos results			
Bank Credit	0.0089 (0.0061)	0.0090 (0.0078)	0.0094 (0.0050)
Capitalization	0.0230 (0.0065)	0.0207 (0.0081)	0.0135 (0.0055)
R <sup>2</sup>	0.4577	0.3754	0.3423
Observations	45	44	44
With IV: CR, ADR, EFF, Legal Origin			
Bank Credit	0.0313 (0.0123)	0.0249 (0.0165)	0.0274 (0.0111)
Capitalization	0.0037 (0.0138)	-0.0121 (0.0185)	0.0044 (0.0124)
Adjusted R <sup>2</sup>	0.4234	0.3183	0.2476
Observations	41	41	40
With IV: CR, ADR, EFF, Legal Origin and Societal Norms			
Bank Credit	0.0344 (0.0116)	0.0252 (0.0138)	0.0292 (0.0105)
Capitalization	0.0060 (0.0116)	0.0113 (0.0137)	-0.0009 (0.0105)
Adjusted R <sup>2</sup>	0.3640	0.3931	0.2110
Observations	40	40	40
With GMM: CR, ADR, EFF, Legal Origin and Societal Norms			
Bank Credit	0.0216 (0.0083)	0.0171 (0.0070)	0.0113 (0.0066)
Capitalization	0.0067 (0.0072)	0.0174 (0.0055)	-0.0026 (0.0070)
Adjusted R <sup>2</sup>	0.3169	0.3878	0.0448
J-statistic	0.1600	0.1928	0.2061
Observations	40	40	40

*Notes:* Heteroskedasticity-consistent standard errors between parentheses. Output growth = real per capita GDP growth; Capital Stock Growth = real per capita stock growth; Productivity Growth = Output Growth – (0.3)\*(Capital Stock Growth). Bank Credit = bank credit to the private sector as a percentage of GDP; Capitalization = value of domestic shares as a share of GDP. Other explanatory variables included: Initial Output, Enrollment, Revolutions and Coups, Government Expenditure, Inflation, and the Black Market Premium. Instruments used in 2SLS and GMM: *EFF*: Efficiency of the Judicial System; *CR*: Creditor

Rights; *ADR*: Antidirector rights; Common Law origin, Scandinavian Origin, French Origin, German Origin, Power Distance, Individualism, Masculinity, and Uncertainty Avoidance.



**Table 14**  
**Volatility, Banks, and Growth, 1976-1993**

Independent variables	Output Growth	Dependent variables Capital Stock Growth	Productivity
Growth			
<b>Levine-Zervos results</b>			
Bank Credit	0.0150 (0.0074)	0.0140 (0.0085)	0.0130 (0.0066)
Volatility	0.0150 (0.0074)	0.4998 (0.1580)	0.0211 (0.2146)
Adjusted R <sup>2</sup>	0.4183	0.6817	0.2938
Observations	32	32	32
<b>With IV: CR, ADR, EFF, Legal Origin</b>			
Bank Credit	0.0307 (0.0191)	0.0232 (0.0101)	0.0272 (0.0181)
Volatility	0.2059 (0.2807)	0.5619 (0.2227)	0.0498 (0.2491)
Adjusted R <sup>2</sup>	0.1104	0.4143	0.0021
Observations	32	32	32
<b>With IV: CR, ADR, EFF, Legal Origin and Societal Norms</b>			
Bank Credit	0.0306 (0.0176)	0.0270 (0.0109)	0.0265 (0.0160)
Volatility	0.1588 (0.2330)	0.5400 (0.1492)	0.0373 (0.2138)
Adjusted R <sup>2</sup>	0.0571	0.4801	-0.0045
Observations	31	31	31
<b>With GMM: CR, ADR, EFF, Legal Origin and Societal Norms</b>			
Bank Credit	0.0148 (0.0056)	0.0237 (0.0067)	0.0259 (0.0067)
Volatility	-0.1213 (0.0531)	0.4685 (0.0890)	0.2187 (0.1228)
Adjusted R <sup>2</sup>	-0.0585	0.4812	-1.0300
J-statistic	0.1809	0.2040	0.1360
Observations	31	31	31

*Notes:* Heteroskedasticity-consistent standard errors between parentheses. Output growth = real per capita GDP growth; Capital Stock Growth = real per capita stock growth; Productivity Growth = Output Growth – (0.3)\*(Capital Stock Growth). Bank Credit = bank credit to the private sector as a percentage of GDP; Volatility = measure of stock return volatility. Other explanatory variables included: Initial Output, Enrollment, Revolutions and Coups, Government Expenditure, Inflation, and the Black Market Premium. Instruments used in 2SLS and GMM: *EFF*: Efficiency of the Judicial System; *CR*: Creditor Rights; *ADR*:

Antidirector rights; Common Law origin, Scandinavian Origin, French Origin, German Origin, Power Distance, Individualism, Masculinity, and Uncertainty Avoidance.